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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,544

07/05/2007

Jiro Shirakata

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EXAMINER

LEUNG, PHILIP H

ART UNIT

PAPER NUMBER

3742

MAIL DATE

DELIVERY MODE

05/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/572,544	Applicant(s) SHIRAKATA ET AL.	
	Examiner PHILIP H. LEUNG	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3-17-2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____. |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3-17-06, 4-20-06, 8-10-07, 9-6-07 & 3-19-08.

DETAILED ACTION

1. The drawings filed on 3-17-2006 are acceptable.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation “wherein said heating element has a Curie temperature which is higher than a fixation temperature and is lower than a heat-resistant temperature of said heating apparatus” in claim 1 is vague and indefinite. First, “a fixation temperature” is not a known fixed value, that is, any heating element must have a Curie temperature larger than some unknown fixation temperature of a material which is not a part of the combination. It is noted the claim is not even directed to a fixation device. Secondly, “a heating temperature of said apparatus” is also not known and the heating element itself is a part of the heating apparatus. Furthermore, the limitation “has a thickness, in an area outside an area corresponding to a predetermined size of the material to be heated, which is larger than a thickness in the area corresponding to the predetermined size of the material to be heated” is vague and indefinite because it is not known

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what “the area corresponding to the predetermined size of the material to be heated” is as the material is NOT a part of the claimed combination. In regard to claim 3, are “a surface layer” and “a heat generating layer” the same as “a surface layer” and “a heat generating layer” as claimed in claim 2 upon which claim 3 depends. They need to be properly identified. In claim 5, “wherein said apparatus” is not necessary and should be deleted for the sake of clarity. Clarification and correction are required.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5, as far as the claims are understood and proper, are rejected under 35 U.S.C. 103(a) as being obvious over Ishimura (JP 2000-39797), in view of Yokoyama (JP 9-306652) or Ricoh (JP 3-56960) (all cited by the applicant).

Ishimura shows a fixation device which is heated by electromagnetic induction. The fixation device 1 comprises a heating roller 2 (corresponding to a heating element) containing a coil 9, which generates heat by the action of magnetic flux from said coil 9 to form image on a material to be heated; the Curie temperature of the heating roller 2 is set at 250°C, higher than the fixation temperature 190°C (see paragraphs 1 and 34-39, and Fig. 1 of the specification of reference 1). Therefore it shows every feature except for the explicit showing that the heating element has a thickness, in an area outside an area corresponding to a predetermined size of the material to be heated, which is larger than a thickness in the area corresponding to the predetermined size of the material to be heated and that the heating roller 2 has a Curie temperature lower than a heat-resistant temperature of the fixation device. Yokoyama discloses an electromagnetic heating roller with the thickness t_1 of the sheet pass portion of the outer heating portion 3 of the heating roller is less than the thickness t_2 of the non-sheet pass portion thereof, as shown in Fig. 1 (see the Abstract, paragraph 13 and Fig. 1 of the specification, of reference 2). Ricoh also shows an image fixing device having a heating roller 1, 11, 21 with a thickness of the heating roller in an area outside an area corresponding to a small-sized paper is larger than that in the area corresponding to a small-sized paper (see Figures 1-3 and page 4, lines 13-18 and page 6, lines 4-11). It would have been obvious to an ordinary skill in the art at the time of invention to modify Ishimura to use a heating element having a thickness larger than the thickness in the material area to achieve the same object of quick start-up of the temperature of electromagnetic induction member, and bring the same technical effect, in view of the teaching of Yokoyama or Ricoh. Regarding the feature that the heating roller 2 has a Curie temperature lower than a heat-resistant temperature of the fixation device, it is a basic

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fundamental engineering knowledge in the art to set the Curie temperature of the heating roller 2 lower than the heat-resistance temperature of the fixation device 1 to prevent overheating of the whole device. Since if the Curie temperature of the heating roller is set higher than the heat-resistance temperature of the fixation device, when the temperature of the heating roller rises higher, under the condition that its temperature does not reach the Curie temperature of the heating roller but is higher than the heat-resistance temperature, the fixation device will be damaged, and then the fixation process can not be completed. In regard to claim 2, Ishimura shows the heating roller has a 15 um-thick resin layer (corresponding to a surface layer) covered on its surface (see paragraph 39 and Fig. 3). It would have been obvious to an ordinary artisan that when the heating roller 2 is at a fixation temperature, the thickness of its heating portion must be larger than the thickness 15 um of the resin layer 7; otherwise, if the thickness of the heating portion is less than 15 um, the heating roller 2 earl not work properly. In regard to claim 4, both Yokoyama and Ricoh show a hollow heating roller with varying diameter. In regard to claim 3, since Yokoyama or Ricoh teaches the use of a heating roller having a thickness larger outside the material area at any temperature, the same thickness difference would be maintained at any heating temperature including the Curie temperature. In regard to claim 5, all fixing device must includes a power supply as claimed, see for example, Figures 2, 7 and 8 of Ishimura.

7. Terada et al (US 6021303) is cited to show an induction heating fixing device with similar claimed features.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H. Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Philip H Leung/
Primary Examiner, Art Unit 3742

P.Leung/pl
5-2-2008

1. A heating apparatus, comprising: a coil, and a heating element, containing said coil, which generates heat by the action of magnetic flux from said coil to heat an image on a material to be heated, wherein said heating element has a Curie temperature which is higher than a fixation temperature and is lower than a heat-resistant temperature of said heating apparatus and has a thickness, in an area outside an area corresponding to a predetermined size of the material to be heated, which is larger than a thickness in the area corresponding to the predetermined size of the material to be heated.

2. An apparatus according to Claim 1, wherein said heating element comprises a surface layer and a heat generation layer which has a thickness larger than a thickness of the surface layer when the temperature of said heating element is a fixation temperature.

3. An apparatus according to Claim 2, wherein said heating element comprises a surface layer and a heat generation layer which has a thickness, in the area outside the area corresponding to the predetermined size of the material to be heated, larger than a thickness of the surface layer when the temperature of said heating element is the Curie temperature.

4. An apparatus according to Claim 1, wherein said heating element is a hollow roller which is changed in an inner diameter so as to change the thickness of said heating element.

5. An apparatus according to Claim 1, wherein said apparatus further comprises power supply means for supplying power to said coil so that a temperature of said heating element in a conveyance area of the material to be heated is a predetermined fixation temperature.